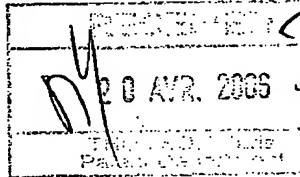


PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing
(day/month/year)

19.04.2006

Applicant's or agent's file reference
PU040008

IMPORTANT NOTIFICATION

International application No.
PCT/EP2005/050571

International filing date (day/month/year)
09.02.2005

Priority date (day/month/year)
13.02.2004

Applicant
THOMSON LICENSING S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the International
preliminary examining authority:



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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PU040008		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2005/050571		International filing date (day/month/year) 09.02.2005	Priority date (day/month/year) 13.02.2004	
International Patent Classification (IPC) or national classification and IPC INV. H04B1/04				
Applicant THOMSON LICENSING S.A. et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 13.12.2005 ✓ V V		Date of completion of this report 19.04.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Sorrentino, A Telephone No. +31 70 340-4107		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2005/050571

Box No. I Basis of the report

1. With regard to the **language**, this report is based on

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-10 as originally filed

Claims, Numbers

1-15 received on 29.03.2006 with letter of 27.03.2006

Drawings, Sheets

1-4 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☒ the claims, Nos. 16-21
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2005/050571

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N) Yes: Claims 1-15

No: Claims

Inventive step (IS) Yes: Claims 1-15

No: Claims

Industrial applicability (IA) Yes: Claims 1-15

No: Claims

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY
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(SEPARATE SHEET)**

International application No.

PCT/EP2005/050571

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: EP-A-0 673 112 (MATSUSHITA ELECTRONICS CORP) 20 September 1995
(1995-09-20)
D2: US 2003/201829 A1 (HAGEMAN MICHAEL L ET AL) 30 October 2003 (2003-
10-30)

- 1 The document D2 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

An apparatus (paragraph 22), comprising modulating means (108) for performing multi-carrier modulations (GMSK, 8PSK) modulations.

The subject-matter of claim 1 differs from this known in that following features are present

- Processing means for retrieving a digital value corresponding to type of modulation associated with a transmission signal
- Converting means converting said digital value to an analogue signal
- Amplifying means for amplifying the transmission signal, controlled by the analog signal, decreasing bias current when decreasing the efficiency per bit of the digital modulation and vice-versa.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as reducing power consumption.

The solution to this problem proposed in claim 1 of the present application is

**INTERNATIONAL PRELIMINARY
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International application No.

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considered as involving an inventive step (Article 33(3) PCT) for the following reasons: D2 is not concerned about problem solved by application but rather with signal distortion when amplifying signal associated with different digital modulation and does not hint in any way to the solution provided for by this application. D1 instead addresses power consumption problem but amplifier is used for only two types of modulation respectively analog and digital: therefore it is very different from the one disclosed in the application where only digital modulation are used.

- 2 Same reasoning as in paragraph 1 above hold for corresponding independent claims 5, 11 that satisfy PCT requirements concerning novelty, inventiveness and industrial applicability.
- 3 Claims 2-4,6-10,12-15 are dependent on claims 1,5,11 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

CLAIMS

1. An apparatus (100), comprising modulating means (20) for performing multi-carrier modulations characterized in that it further comprises:
- 5 processing means (10) for retrieving a digital value corresponding to type of modulation associated with a transmission signal
- converting means (60) converting said digital value to an analog signal,
- amplifying means (50) for amplifying the transmission signal, controlled by the analog signal decreasing bias current when decreasing the efficiency per bit of
- 10 the digital modulation and vice versa.
2. The apparatus (100) of claim 1, further comprising signal transmitting means (70) for wirelessly transmitting said transmission signal.
3. The apparatus (100) of claim 1, wherein said type of modulation includes one of:
- 15 bi-phase shift keyed (BPSK) modulation;
- quadrature phase shift keyed (QPSK) modulation; and
- quadrature amplitude modulation (QAM).
- 20 4. The apparatus (100) of claim 1, wherein said transmitter apparatus (100) is part of a mobile transceiver having a battery power supply.
5. A method (400) for controlling a transmitter apparatus (100),
- 25 comprising:
- identifying and retrieving a digital value corresponding to a type of digital modulation for a transmission signal (410, 420);
- converting said digital value to an analog signal (430); and
- controlling power amplification of said transmission signal using said
- 30 analog signal in decreasing a bias current of the amplifier when decreasing the efficiency per bit of the digital modulation and vice versa (440)

6. The method (400) of claim 5 further comprised of wirelessly transmitting said transmission signal (450).

7. The method (400) of claim 5, characterized in that said digital value is based on the crest factor.

8. The method according to claim 5 characterized in that bias current is decreased when digital modulation is changed from 64 QAM $\frac{3}{4}$ to BPSK $\frac{1}{2}$.

9. The method according to claim 7 characterized in that it is in compliance with one of the standards belonging to the set comprising:

Hiperlan type 2;

IEEE 802.11a;

DVB-T

802.16a

10. The method (400) of claim 5, wherein said type of digital modulation includes one of:

bi-phase shift keyed (BPSK) modulation;

quadrature phase shift keyed (QPSK) modulation; and

quadrature amplitude modulation (QAM).

11. An apparatus (100), comprising:

a processor(10) for retrieving a digital value corresponding to type of

modulation associated with a transmission signal

a digital analog converter (60) converting said digital value to an analog signal

a power amplifier (50) for amplifying the transmission signal, controlled by the analog signal decreasing bias current when decreasing the efficiency per bit of the digital modulation and vice versa.

12. The apparatus (100) of claim 11, further comprising a signal transmitting element (70) operative to wirelessly transmit said transmission signal.

13. The apparatus (100) of claim 11, wherein said type of digital modulation includes one of:

bi-phase shift keyed (BPSK) modulation;
quadrature phase shift keyed (QPSK) modulation; and
5 quadrature amplitude modulation (QAM).

14. The apparatus (100) of claim 11, further comprising a modulator (20) operative to perform a plurality of different types of digital modulation.

10 15. The apparatus (100) of claim 11, wherein said apparatus (100) is embodied as a mobile transceiver having a battery power supply.